

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Please cancel claims 1-14.

15. (New) Fuel cell comprising a substrate supporting an electrolytic membrane comprising first and second faces on which first and second electrodes are respectively arranged, the first and second electrodes respectively comprising first and second catalytic elements, circulation means being designed to bring first and second fluids respectively in proximity to the first and second catalytic elements, wherein the circulation means of the first fluid are designed in such a way as to make the latter flow in a direction substantially parallel to the first face of the electrolytic membrane, in a cavity formed in the substrate and comprising a plurality of studs supporting said electrolytic membrane.

16. (New) Fuel cell according to claim 15, wherein the distance between two studs is less than or equal to 50 micrometers.

17. (New) Fuel cell according to claim 15, wherein the first catalytic element is formed by a plurality of catalytic zones respectively arranged at the top of the studs of the cavity.

18. (New) Fuel cell according to claim 15, wherein the first catalytic element is formed by a plurality of catalytic zones, said catalytic zones being respectively formed by the studs.

19. (New) Fuel cell according to claim 18, wherein the studs comprise, at the top part thereof, a broader zone forming a head.

20. (New) Fuel cell according to claim 15, wherein the studs have a circular cross-section.

21. (New) Fuel cell according to claim 15, wherein the studs have a rectangular cross-section.

22. (New) Fuel cell according to claim 15, wherein the studs have a polygonal cross-section.

23. (New) Fuel cell according to claim 15, wherein the studs form a network designed to distribute the first fluid homogeneously in the cavity.

24. (New) Fuel cell according to claim 23, wherein the network is arranged in zig-zagged manner.

25. (New) Method for production of a fuel cell according to claim 15, consisting in performing reactive ionic etching in the substrate so as to simultaneously form the cavity and the plurality of studs.

26. (New) Method for production according to claim 25, consisting in depositing on the top of each stud, by physical vapour deposition, a growth promoting substance designed to foster formation of a catalyzer support whereon a catalytic layer is deposited by electroplating.

27. (New) Method for production according to claim 26, wherein the catalyzer support is formed by carbon nanotubes.

28. (New) Method for production of a fuel cell according to claim 15, consisting in etching the cavity in the substrate and in then forming the plurality of studs by electrolytic growth.